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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,158	09/08/2003	Soo-Hong Park	Q76137	9941

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EXAMINER
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CHO, HONG SOL

ART UNIT	PAPER NUMBER
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2616

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/25/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/656,158

Applicant(s)

PARK ET AL.

Examiner

Hong Cho

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20060130</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 35 is objected to because of the following informality:

Re claim 35, line 1, "method" should read - - system - -.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 19-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter since they disclose abstract idea without providing useful or tangible result.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 14, 25, 27-30 and 32-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang (US 20040153502).

Re claims 1-3, 14 and 25, Jiang discloses interconnecting IPv6 network and IPv4 network. Jiang discloses a plurality of IPv6 nodes, a plurality of IPv4 nodes, and a plurality of apparatuses (NAT-PTs in claims 2, 3, 14 and 25) for transmitting IP packets between the IPv6 nodes and the IPv4 nodes (figure 5; paragraph [0039], lines 3-8), wherein the apparatuses for transmitting IP packets share processing state information of the IP packets, using a predetermined message, to distribute their load of processing the IP packets (paragraph [0040], lines 6-8).

Re claims 27 and 32, Jiang discloses a plurality of IPv6 nodes, a plurality of IPv4 nodes, and an apparatus for transmitting IP packets between the IPv6 nodes and the IPv4 nodes (figure 1). Jiang discloses receiving a message 1-2 (*a DNS message for searching for an IPv4 address of a destination domain name*), forwarding the message to DNS2 (*transmitting the received DNS message to a DNSv4 server*) and receiving host B's address (*receiving an IPv4 address of the destination domain name from the DNSv4 server*), combining the address prefix of NAT-PT and the address of the host B (*allocating a predetermined prefix to the received IPv4 address to translate the IPv4 address into an IPv6 address*) and sending the answer to host A (*transmitting the translated IPv6 address to a corresponding IPv6 node*, paragraph [0010]).

Re claim 28, Jiang discloses transmitting a packet to the IPv6 address as a destination address (figure 6, element s4).

Re claims 29 and 33, Jiang discloses combining the address prefix of NAT-PT and the address of the host B (*the predetermined prefix is one of a plurality of prefixes allocated in a sequential order to the at least one apparatus for transmitting IP packets, paragraph [0010], lines 11-14*).

Re claims 30 and 34, Jiang discloses allocating the address prefix of NAT-PT with less load to a message indicating load information (*the predetermined prefix is the prefix of an apparatus with the least load among the at least one apparatus for transmitting IP packets, the apparatus for transmitting IP packets with the least load being identified by using a predetermined message regarding information on the load of the at least one apparatus for transmitting IP packets, paragraph [0042]*).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang in view of Parmar (US 20040111529).

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Re claims 4 and 15, Jiang discloses all of the limitations of the base claim, but fails to disclose using ICMPv6 redirect message to distribute load information. Parmar discloses using ICMPv6 redirect message to deliver load information (paragraph [0030], lines 3-6; paragraph [0035], lines 1-2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Jiang to use ICMPv6 redirect message for distributing load information for the benefit of conforming to IPv6 standard.

Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang in view of Parmar and further in view of RFC 2461.

Re claims 5 and 16, Jiang and Parmar disclose all of the limitations of the base claim, but fail to disclose the ICMP v6 redirect message with a flag bit that indicates the processing state of a particular NAT-PT apparatus and a target address field which stores the address of another NAT-PT apparatus. RFC 2461 discloses an ICMP v6 redirect message format with a reserved field and a target address field (section 4.5 on page 25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a reserved field and a target address field in the ICMP v6 redirect message format of Jiang and Parmar to indicate the processing state of a particular NAT-PT apparatus and store the address of another NAT-PT apparatus so that a future incoming packet would be routed to a NAT-PT apparatus with less workload for the benefit of balancing load.

Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang in view of Cheng et al (US 7050424), hereinafter referred to as Cheng.

Re claims 6 and 17, Jiang discloses indicating a NAT-PT's load information in light of address translation function (*a packet processing state of a particular NAT-PT apparatus is indicated by observing a rate of use of the mapping table*, paragraph [0017]), but fails to disclose determining a packet processing state based on a predetermined threshold. Cheng discloses evaluating load condition of a given server based on predefined threshold (figure 3, element 56). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Jiang to implement the feature of evaluating load condition based on predefined threshold so that a packet would be routed to a server with less workload for the benefit of meeting QoS of a given application.

Claims 7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang in view of Zhang et al (US20040001509), hereinafter referred to as Zhang and further in view of Cheng.

Re claims 7 and 18, Jiang discloses indicating a NAT-PT's load information in light of address translation function (*a packet processing state of a particular NAT-PT apparatus is indicated by observing a rate of use of the mapping table*, paragraph [0017]), but fails to disclose an IPv4 address pool and determine a packet processing state based on a predetermined threshold. Zhang discloses a NAT-PT apparatus with an IPv4 address pool (figure 2, element 108). Cheng discloses evaluating load condition of a

given server based on predefined threshold (figure 3, element 56). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Jiang to implement the feature of evaluating load condition based on predefined threshold by observing a state of use of an IPv4 address pool, as suggested by Cheng and Zhang, respectively, so that a packet would be routed to a server with less workload for the benefit of meeting QoS of a given application.

Claims 8, 9, 19, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of Cheng.

Re claims 8, 19 and 26, Zhang discloses an NAT-PT receiving an IPv6 packet (*a determination unit which receives an IPv6 packet*), mapping an IPv6 address to an IPv4 address and an IPv4 address to an IPv6 address based on pool of IPv4 addresses (*mapping table generation and storage unit Which generates and stores a mapping table for mapping an IPv4 address corresponding to the address of the IPv6 address*, figure 2, element 108; paragraph [0016]), and translating an IPv6 packet header into an IPv4 packet header (*an IP header translation unit which translates an IPv6 packet header into an IPv4 packet header*, paragraph [0012], lines 19-21). Zhang fails to disclose determining if received IPv6 packet is to be processed according to the current packet processing state of the NAT-PT apparatus. Cheng discloses determining if a voice data can be processed at a given server based on its workload (figure 3, element 56). It would have been obvious to one having ordinary skill in the art at the time the invention was



made to modify the NAT-PT of Zhang to implement determining process of Cheng so that efficient service in address translation is performed.

Re claims 9 and 20, Zhang discloses an NAT-PT receiving an IPv6 packet and mapping an IPv6 address to an IPv4 address (figure 2, element 108; paragraph [0016]), and translating an IPv6 packet header into an IPv4 packet header (paragraph [0012], lines 19-21). Zhang fails to disclose determining if received IPv6 packet is to be processed according to the current packet processing state of the NAT-PT apparatus. Cheng discloses evaluating load condition of a given server based on predefined threshold (figure 3, element 56). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Zhang to implement the feature of evaluating load condition based on predefined threshold so that a packet would be routed to a server with less workload for the benefit of meeting QoS of a given application.

Claims 10, 11, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of Cheng and further in view of Parmar.

Re claims 10, 11, 21 and 22, Zhang and Cheng disclose all of the limitations of the base claim, but fail to disclose reporting the state of the NAT-PT apparatus being incapable of processing packets to the IPv6 node which transmitted the IPv6 packet is performed by using an ICMPv6 redirect message. Parmar discloses using ICMPv6 redirect message to deliver load information (paragraph [0030], lines 3-6; paragraph [0035], lines 1-2). It would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Jiang to use ICMPv6 redirect message for distributing load information for the benefit of conforming to IPv6 standard.

Claims 12 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of Cheng and further in view of Palmar and further in view of RFC 2461.

Re claims 12 and 23, Zhang, Cheng and Palmar disclose all of the limitations of the base claim, but fail to disclose the ICMP v6 redirect message with a flag bit that indicates the processing state of a particular NAT-PT apparatus and a target address field which stores the address of another NAT-PT apparatus. RFC 2461 discloses an ICMP v6 redirect message format with a reserved field and a target address field (section 4.5 on page 25). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a reserved field and a target address field in the ICMP v6 redirect message format of Zhang, Cheng and Palmar to indicate the processing state of a particular NAT-PT apparatus and store the address of another NAT-PT apparatus so that a future incoming packet would be routed to a NAT-PT apparatus with less workload for the benefit of balancing load.

Claims 31 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jiang in view of Malinen et al (US 20030028763), hereinafter referred to as Malinen, and further in view of Zhang et al (US 6526450), hereinafter referred to as Lou.

Re claims 31 and 35, Jiang discloses all of the limitations of the base claim, but fails to disclose creating the predetermined message using a code field of an ICMP v6

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redirect message and a qtype field of a reply message. Malinen discloses using Code field of an ICMPv6 (paragraph [0110], lines 2-3). Lou discloses using Qtype field of a reply message (column 4, lines 52-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the message of Jiang in transmitting load information by using a Code field of an ICMP v6 redirect message and a QType field of a reply message of Malinen and Lou so that load information specified in Qtype field as a query type would be inserted in a Code field of an ICMP v6 redirect message.

### *Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

*hc*  
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